

SEQUENCE LISTING

<110> DEHESH et al.

<120> Engineering Beta Ketoacyl ACP Synthase for Novel Substrate Specificity

<130> 16516.117

<140> US 09/591,279

<141> 2000-06-09

<150> US 60/138,308

<151> 1999-06-09

<160> 47

<170> PatentIn version 3.0

<210> 1

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

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<223> Oligonucleotide Primer I108F Sense

<400> 1

gtgccgcaat tggatccggg tttggcggcc tcggac

36

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<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer I108F Antisense

<400> 2

gtccgaggcc gccaaaccg gatccaattg cggcac

36

<210> 3

<211> 42

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer I108L Sense

<400> 3
gtgccgcaat tggctccggg cttggaggcc tcggactgat cg 42

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<400> 4
cgatcagtcc gaggcctcca agcccggagc caattgcggc ac 42

<210> 5
<211> 36
<212> DNA
<213> Artificial Sequence

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<223> Oligonucleotide Primer A193I Sense

<400> 5
gcaggtggcg ccgagaaaat cagtacgccg ctgggc 36

<210> 6
<211> 35
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<400> 6
gcccagcggc gtactgattt tctcggcgcc acctg 35

<210> 7
<211> 37
<212> DNA
<213> Artificial Sequence

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<223> Oligonucleotide Primer A193M Sense

<400> 7
ggtggcgag agaaaatgag tactccgctg ggcgttg 37

<210> 8
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
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<222> ()..()
<223> Oligonucleotide Primer A193M Antisense

<400> 8
caacgcccag cggagtactc attttctctg cgccacc 37

<210> 9
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Oligonucleotide Primer I108A,L111A, I114A Sense

<400> 9
gcaattggct ccggggctgg cggcgccgga ctggccgaag aaaaccacac 50

<210> 10
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> ()..()
<223> Oligonucleotide Primer I108A,L111A, I114A Antisense

<400> 10
gtgtggtttt cttcggccag tccggcgccg ccagccccgg agccaattgc 50

<210> 11
<211> 28
<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer L111A Sense

<400> 11

gggattggcg gcgccggact gatcgaag

28

<210> 12

<211> 28

<212> DNA

<213> Artificial Sequence

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<222> ()..()

<223> Oligonucleotide Primer L111A Antisense

<400> 12

cttcgatcag tccggcgccg ccaatccc

28

<210> 13

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> ()..()

<223> Oligonucleotide Primer F133A Sense

<400> 13

gatcagccca ttcgcggtac cgtcaacgat tgtg

34

<210> 14

<211> 34

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer F133A Antisense

<400> 14

cacaatcgtt gacggtaccg cgaatgggct gatc

34

<210> 15
 <211> 32
 <212> DNA
 <213> Artificial Sequence

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 <222> ()..()
 <223> Oligonucleotide Primer L197A Sense

 <400> 15
 gagaaagcca gtactccggc gggcggttggt gg 32

 <210> 16
 <211> 32
 <212> DNA
 <213> Artificial Sequence

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 <222> ()..()
 <223> Oligonucleotide Primer L197A Antisense

 <400> 16
 ccaccaacgc ccgccggagt actggctttc tc 32

 <210> 17
 <211> 56
 <212> DNA
 <213> Artificial sequence

 <220>
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 <223> Self annealed oligonucleotide primer

 <400> 17
 cgcgatttaa atggcgcgcc ctgcaggcgg ccgcctgcag ggcgcgccat ttaaat 56
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 <210> 18
 <211> 366
 <212> DNA
 <213> Cuphea hookeriana

 <400> 18
 ctgagatctg tcgacatggc gaccgcttct cgcattggtg cgtccccttt ctgtacgtgg 60
 ctcgtagctg catgcatgcc cacttcatcc gacaacgacc cacgttcctt tcccacaag 120
 cggctccgcc tctcccgtcg ccggaggact ctctcctccc attgctcctt ccgcggatcc 180

accttccaat gcctcgatcc ttgcaaccag caacgcttcc tcggggataa cggattcgct 240
 tccctcttcg gatccaagcc tcttcgttca aatcgcggcc acctgaggct cggccgcact 300
 tcccatctcg gggagggtcat ggctgtggct atgcaacctg cacaggaagt ctccacaaga 360
 tctgtc 366

<210> 19
 <211> 431
 <212> PRT
 <213> Arabidopsis thaliana

<400> 19

Ile Ser Ala Ser Ala Ser Thr Val Ser Ala Pro Lys Arg Glu Thr Asp
 1 5 10 15
 Pro Lys Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Cys
 20 25 30
 Gly Asn Asp Val Asp Ala Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser
 35 40 45
 Gly Ile Ser Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg
 50 55 60
 Phe Gly Gly Gln Ile Arg Gly Phe Ser Ser Glu Gly Tyr Ile Asp Gly
 65 70 75 80
 Lys Asn Glu Arg Arg Leu Asp Asp Cys Leu Lys Tyr Cys Ile Val Ala
 85 90 95
 Gly Lys Lys Ala Leu Glu Ser Ala Asn Leu Gly Gly Asp Lys Leu Asn
 100 105 110
 Thr Ile Asp Lys Arg Lys Ala Gly Val Leu Val Gly Thr Gly Met Gly
 115 120 125
 Gly Leu Thr Val Phe Ser Glu Gly Val Gln Asn Leu Ile Glu Lys Gly
 130 135 140
 His Arg Arg Ile Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met
 145 150 155 160
 Gly Ser Ala Leu Leu Ala Ile Asp Leu Gly Leu Met Gly Pro Asn Tyr
 165 170 175
 Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala
 180 185 190
 Ala Asn His Asn His Arg Gly Glu Ala Asp Met Met Ile Ala Gly Gly
 195 200 205
 Thr Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys
 210 215 220

Arg Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro
 225 230 235 240
 Trp Asp Lys Ala Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val
 245 250 255
 Leu Val Met Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile
 260 265 270
 Val Ala Glu Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala His His Met
 275 280 285
 Thr Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Arg
 290 295 300
 Cys Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn
 305 310 315 320
 Ala His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala
 325 330 335
 Ile Lys Lys Val Phe Lys Ser Thr Ser Gly Ile Lys Ile Asn Ala Thr
 340 345 350
 Lys Ser Met Ile Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala
 355 360 365
 Ile Ala Thr Val Lys Ala Ile Asn Thr Gly Trp Leu His Pro Ser Ile
 370 375 380
 Asn Gln Phe Asn Pro Glu Gln Ala Val Asp Phe Asp Thr Val Pro Asn
 385 390 395 400
 Glu Lys Lys Gln His Glu Val Asp Val Ala Ile Ser Asn Ser Phe Gly
 405 410 415
 Phe Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
 420 425 430

<210> 20
 <211> 429
 <212> PRT
 <213> Brassica napus

<400> 20

Ala Ser Ser Ser Ala Val Ser Ala Pro Lys Arg Glu Thr Asp Pro Lys
 1 5 10 15
 Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly Asn
 20 25 30
 Asp Val Asp Ala Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser Gly Ile
 35 40 45
 Ser Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly

50	55	60
Gly Gln Ile Arg Gly Phe Ser Ser Glu Gly Tyr Ile Asp Gly Lys Asn 65 70 75 80		
Glu Arg Arg Leu Asp Asp Cys Leu Lys Tyr Cys Ile Val Ala Gly Lys 85 90 95		
Lys Ala Leu Glu Ser Ala Asn Leu Gly Gly Asp Lys Leu Asn Thr Ile 100 105 110		
Asp Lys Gln Lys Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu 115 120 125		
Thr Val Phe Ser Asp Gly Val Gln Ala Leu Ile Glu Lys Gly His Arg 130 135 140		
Arg Ile Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser 145 150 155 160		
Ala Leu Leu Ala Ile Asp Leu Gly Leu Met Gly Pro Asn Tyr Ser Ile 165 170 175		
Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn 180 185 190		
His Ile Arg Arg Gly Glu Ala Asp Met Met Ile Ala Gly Gly Thr Glu 195 200 205		
Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala 210 215 220		
Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp Asp 225 230 235 240		
Lys Gln Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val 245 250 255		
Met Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Val Ala 260 265 270		
Glu Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala His His Met Thr Asp 275 280 285		
Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Cys Leu 290 295 300		
Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala His 305 310 315 320		
Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile Lys 325 330 335		
Lys Val Phe Lys Ser Thr Ser Gly Ile Lys Ile Asn Ala Thr Lys Ser 340 345 350		
Met Ile Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala Ile Ala		

355 360 365
 Thr Val Lys Ala Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn Gln
 370 375 380
 Phe Asn Pro Glu Pro Ala Val Asp Phe Asp Thr Val Ala Asn Glu Lys
 385 390 395 400
 Lys Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly
 405 410 415
 Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
 420 425
 <210> 21
 <211> 350
 <212> PRT
 <213> Cuphea hookeriana
 <400> 21
 Ser Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly
 1 5 10 15
 Cys Arg Asn Ser Ala Arg Ala Asp Leu Gly Ala Asp Arg Leu Ser Lys
 20 25 30
 Ile Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly
 35 40 45
 Leu Thr Val Phe Ser Asp Gly Val Gln Ser Leu Ile Glu Lys Gly His
 50 55 60
 Arg Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly
 65 70 75 80
 Ser Ala Leu Leu Ala Ile Glu Phe Gly Leu Met Gly Pro Asn Tyr Ser
 85 90 95
 Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe His Ala Ala Ala
 100 105 110
 Asn His Ile Arg Arg Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr
 115 120 125
 Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg
 130 135 140
 Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp
 145 150 155 160
 Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu
 165 170 175
 Val Met Glu Ser Leu Glu His Ala Met Arg Arg Gly Ala Pro Ile Ile
 180 185 190

Ala Glu Tyr Leu Gly Gly Ala Ile Asn Cys Asp Ala Tyr His Met Thr
195 200 205

Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser
210 215 220

Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala
225 230 235 240

His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile
245 250 255

Lys Lys Val Phe Lys Asn Thr Lys Asp Ile Lys Ile Asn Ala Thr Lys
260 265 270

Ser Met Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile
275 280 285

Ala Thr Ile Lys Gly Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn
290 295 300

Gln Phe Asn Pro Glu Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys
305 310 315 320

Lys Gln Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe
325 330 335

Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
340 345 350

<210> 22
<211> 441
<212> PRT
<213> Cuphea hookeriana

<220>
<221> misc_feature
<222> (15)..(15)
<223> Xaa at position 15 is unknown.

<400> 22

Lys Leu Thr Leu Thr Lys Gly Asn Lys Ser Trp Ser Ser Thr Xaa Val
1 5 10 15

Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ala
20 25 30

Arg Ala Gly Met Gly Leu Val Ser Val Phe Gly Ser Asp Val Asp Ser
35 40 45

Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser Gly Ile Ser Leu Ile Asp
50 55 60

Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly Gly Gln Ile Arg
65 70 75 80

Gly Phe Asn Ala Thr Gly Tyr Ile Asp Gly Lys Asn Asp Arg Arg Leu
 85 90 95
 Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly Lys Lys Ala Leu Glu
 100 105 110
 Asn Ser Asp Leu Gly Gly Glu Ser Leu Ser Lys Ile Asp Lys Glu Arg
 115 120 125
 Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu Thr Val Phe Ser
 130 135 140
 Asp Gly Val Gln Asn Leu Ile Glu Lys Gly His Arg Lys Ile Ser Pro
 145 150 155 160
 Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser Ala Leu Leu Ala
 165 170 175
 Ile Asp Leu Gly Leu Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys
 180 185 190
 Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn His Ile Arg Arg
 195 200 205
 Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr Glu Ala Ala Ile Ile
 210 215 220
 Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg
 225 230 235 240
 Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp Asp Lys Asp Arg Asp
 245 250 255
 Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val Met Glu Ser Leu
 260 265 270
 Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile Ala Glu Tyr Leu Gly
 275 280 285
 Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp Pro Arg Ala Asp
 290 295 300
 Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser Leu Glu Asp Ala Gly
 305 310 315 320
 Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr
 325 330 335
 Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile Lys Lys Val Phe Lys
 340 345 350
 Asn Thr Lys Glu Ile Thr Ile Asn Ala Thr Lys Ser Met Ile Gly His
 355 360 365
 Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile Ala Thr Ile Lys Gly
 370 375 380

Ile Thr Thr Gly Trp Leu His Pro Ser Ile Asn Gln Phe Asn Pro Glu
385 390 395 400

Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys Lys Gln Gln His Glu
405 410 415

Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser
420 425 430

Val Val Ala Phe Ser Ala Phe Lys Pro
435 440

<210> 23
<211> 430
<212> PRT
<213> Cuphea pullcherima

<400> 23

Arg Ala Ala Ser Pro Thr Val Ser Ala Pro Lys Arg Glu Thr Asp Pro
1 5 10 15

Lys Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly
20 25 30

Ser Asp Val Asp Ala Tyr Tyr Asp Lys Leu Leu Ser Gly Glu Ser Gly
35 40 45

Ile Gly Pro Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe
50 55 60

Gly Gly Gln Ile Arg Gly Phe Asn Ser Met Gly Tyr Ile Asp Gly Lys
65 70 75 80

Asn Asp Arg Arg Leu Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly
85 90 95

Lys Lys Ser Leu Glu Asp Ala Asp Leu Gly Ala Asp Arg Leu Ser Lys
100 105 110

Ile Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly
115 120 125

Leu Thr Val Phe Ser Asp Gly Val Gln Ser Leu Ile Glu Lys Gly His
130 135 140

Arg Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly
145 150 155 160

Ser Ala Leu Leu Ala Ile Glu Leu Gly Leu Met Gly Pro Asn Tyr Ser
165 170 175

Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe His Ala Ala Ala
180 185 190

Asn His Ile Arg Arg Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr

195	200	205
Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg		
210	215	220
Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp		
225	230	235
Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu		
245	250	255
Val Leu Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile		
260	265	270
Ala Glu Tyr Leu Gly Gly Ala Ile Asn Cys Asp Ala Tyr His Met Thr		
275	280	285
Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser		
290	295	300
Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala		
305	310	315
His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile		
325	330	335
Lys Lys Val Phe Lys Asn Thr Lys Asp Ile Lys Ile Asn Ala Thr Lys		
340	345	350
Ser Met Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile		
355	360	365
Ala Thr Ile Lys Gly Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn		
370	375	380
Gln Phe Asn Pro Glu Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys		
385	390	395
Lys Gln Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe		
405	410	415
Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro		
420	425	430

<210> 24
 <211> 428
 <212> PRT
 <213> Cuphea pullcherima

<400> 24

Arg Ala Ala Thr Ala Ser Ala Pro Lys Arg Glu Ser Asp Pro Lys Lys
1 5 10 15

Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly Ser Asp
20 25 30

Val Asp Ala Tyr Tyr Asp Lys Leu Leu Ser Gly Glu Ser Gly Ile Ser
 35 40 45
 Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Ala Gly
 50 55 60
 Gln Ile Arg Gly Phe Asn Ala Thr Gly Tyr Ile Asp Gly Lys Asn Asp
 65 70 75 80
 Arg Arg Leu Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly Lys Lys
 85 90 95
 Ala Leu Glu Asp Ala Asp Leu Ala Gly Gln Ser Leu Ser Lys Ile Asp
 100 105 110
 Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu Thr
 115 120 125
 Val Phe Ser Asp Gly Val Gln Asn Leu Ile Glu Lys Gly His Arg Lys
 130 135 140
 Ile Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser Ala
 145 150 155 160
 Leu Leu Ala Ile Asp Leu Gly Leu Met Gly Pro Asn Tyr Ser Ile Ser
 165 170 175
 Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn His
 180 185 190
 Ile Arg Arg Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr Glu Ala
 195 200 205
 Ala Val Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala Leu
 210 215 220
 Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp Asp Lys
 225 230 235 240
 Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val Met
 245 250 255
 Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile Ala Glu
 260 265 270
 Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp Pro
 275 280 285
 Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser Leu Glu
 290 295 300
 Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala His Ala
 305 310 315 320
 Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile Lys Lys
 325 330 335

Val Phe Lys Asn Thr Lys Glu Ile Lys Ile Asn Ala Thr Lys Ser Met
 340 345 350

Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile Ala Thr
 355 360 365

Ile Lys Gly Ile Thr Thr Gly Trp Leu His Pro Ser Ile Asn Gln Phe
 370 375 380

Asn Pro Glu Pro Ser Val Asp Phe Asn Thr Val Ala Asn Lys Lys Gln
 385 390 395 400

Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly Gly
 405 410 415

His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
 420 425

<210> 25
 <211> 427
 <212> PRT
 <213> Hordeum vulgare

<400> 25

Thr Ser Ala Ala Pro Gln Arg Glu Thr Asp Pro Arg Lys Arg Val Val
 1 5 10 15

Ile Thr Gly Met Gly Leu Ala Ser Val Phe Gly Ser Asp Val Asp Thr
 20 25 30

Phe Tyr Asp Arg Leu Leu Ala Gly Glu Ser Gly Val Gly Pro Ile Asp
 35 40 45

Arg Phe Asp Ala Ser Ser Phe Pro Thr Arg Phe Ala Gly Gln Ile Arg
 50 55 60

Gly Phe Ser Ser Glu Gly Tyr Ile Asp Gly Lys Asn Asp Arg Arg Leu
 65 70 75 80

Asp Asp Cys Ile Arg Tyr Cys Ile Leu Ser Gly Lys Lys Ala Leu Glu
 85 90 95

Ser Ala Gly Leu Gly Ala Gly Ser Asp Ala His Val Lys Leu Asp Val
 100 105 110

Gly Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu Ser Val
 115 120 125

Phe Ser Asp Gly Val Gln Asn Leu Ile Glu Lys Gly Tyr Arg Lys Ile
 130 135 140

Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser Ala Leu
 145 150 155 160

Leu Ala Ile Asp Val Gly Phe Met Gly Pro Asn Tyr Ser Ile Ser Thr
 165 170 175

Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn His Ile
 180 185 190
 Arg Arg Gly Glu Ala Asp Ile Ile Val Ala Gly Gly Thr Glu Ala Ala
 195 200 205
 Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala Leu Ser
 210 215 220
 Gln Arg Asn Asp Asp Pro Ile Thr Ala Cys Arg Pro Trp Asp Lys Glu
 225 230 235 240
 Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val Met Glu
 245 250 255
 Ser Leu Glu His Ala Met Lys Arg Asp Ala Pro Ile Ile Ala Glu Tyr
 260 265 270
 Leu Gly Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp Pro Arg
 275 280 285
 Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Thr Met Ser Leu Arg Asp
 290 295 300
 Ala Gly Val Ala Pro Glu Glu Val Asn Tyr Ile Asn Ala His Ala Thr
 305 310 315 320
 Ser Thr Leu Ala Gly Asp Leu Ala Glu Val Arg Ala Ile Lys Gln Val
 325 330 335
 Phe Lys Asn Pro Ser Glu Ile Lys Ile Asn Ser Thr Lys Ser Met Ile
 340 345 350
 Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala Ile Ala Thr Ile
 355 360 365
 Lys Ser Ile Thr Thr Gly Trp Val His Pro Thr Ile Asn Gln Phe Asn
 370 375 380
 Pro Glu Pro Glu Val Asp Phe Asp Thr Val Ala Asn Glu Lys Lys Gln
 385 390 395 400
 His Glu Val Asn Val Gly Ile Ser Asn Ser Phe Gly Phe Gly Gly His
 405 410 415
 Asn Ser Val Val Val Phe Ala Pro Phe Lys Pro
 420 425

<210> 26
 <211> 428
 <212> PRT
 <213> Ricinus communis

<400> 26

Asn Asn Asn Thr Thr Ile Ser Ala Pro Lys Arg Glu Lys Asp Pro Arg

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Lys Arg Val Val Ile Thr Gly Thr Gly Leu Val Ser Val Phe Gly Asn	20	25	30
Asp Val Asp Thr Tyr Tyr Asp Lys Leu Leu Ala Gly Glu Ser Gly Ile	35	40	45
Gly Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly	50	55	60
Gly Gln Ile Arg Gly Phe Asn Ser Gln Gly Tyr Ile Asp Gly Lys Asn	65	70	75
Asp Arg Arg Leu Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly Lys	85	90	95
Lys Ala Leu Glu His Ala Asp Leu Gly Gly Asp Lys Leu Ser Lys Ile	100	105	110
Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu	115	120	125
Thr Val Phe Ser Asp Gly Val Gln Ala Leu Ile Glu Lys Gly His Arg	130	135	140
Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser	145	150	155
Ala Leu Leu Ala Ile Glu Leu Gly Leu Met Gly Pro Asn Tyr Ser Ile	165	170	175
Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn	180	185	190
His Ile Arg Arg Gly Glu Ala Glu Leu Met Ile Ala Gly Gly Thr Glu	195	200	205
Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala	210	215	220
Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp Asp	225	230	235
Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val	245	250	255
Met Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile Ala	260	265	270
Glu Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp	275	280	285
Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Arg Ser Leu	290	295	300
Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala His			

305 310 315 320
 Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile Lys
 325 330 335
 Lys Val Phe Lys Asn Thr Ser Asp Ile Lys Ile Asn Ala Thr Lys Ser
 340 345 350
 Met Ile Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala Ile Ala
 355 360 365
 Cys Val Lys Ala Ile Thr Thr Gly Trp Leu His Pro Thr Ile Asn Gln
 370 375 380
 Phe Asn Pro Glu Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys Lys
 385 390 395 400
 Gln Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly
 405 410 415
 Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys
 420 425

 <210> 27
 <211> 420
 <212> PRT
 <213> Capsicum chinense

 <400> 27

 Lys Arg Glu Thr Asp Pro Lys Lys Arg Ile Val Ile Thr Gly Met Gly
 1 5 10 15
 Leu Val Ser Val Phe Gly Ser Asp Ile Asp Asn Phe Tyr Asn Lys Leu
 20 25 30
 Leu Glu Gly Gln Ser Gly Ile Ser Leu Ile Asp Arg Phe Asp Ala Ser
 35 40 45
 Ser Tyr Thr Val Arg Phe Ala Gly Gln Ile Arg Asp Phe Ser Ser Glu
 50 55 60
 Gly Tyr Ile Asp Gly Lys Asn Asp Arg Arg Leu Asp Asp Cys Trp Arg
 65 70 75 80
 Tyr Cys Leu Val Ala Gly Lys Arg Ala Leu Glu Asp Ala Asn Leu Gly
 85 90 95
 Gln Gln Val Leu Asp Thr Met Asp Lys Thr Arg Ile Gly Val Leu Val
 100 105 110
 Gly Ser Ser Met Gly Gly Ser Lys Val Phe Ala Asp Ala Val Glu Ala
 115 120 125
 Leu Val Gln Arg Gly Tyr Lys Lys Ile Asn Pro Phe Phe Ile Pro Tyr
 130 135 140

Ser Ile Thr Asn Met Gly Ser Ala Leu Leu Ala Ile Asp Thr Gly Leu
 145 150 155 160
 Met Gly Pro Thr Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ala Asn Tyr
 165 170 175
 Cys Phe Tyr Ala Ser Ala Asn His Ile Arg Arg Gly Glu Ala Asp Ile
 180 185 190
 Met Val Ala Gly Gly Thr Asp Ala Phe Ile Ser Ala Ile Gly Val Gly
 195 200 205
 Gly Leu Ile Ala Cys Arg Ala Leu Ser Gln Arg Asn Asp Glu Tyr Glu
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Arg Asn Arg Asp Gly Phe Val Ile Gly
 225 230 235 240
 Glu Gly Ser Gly Val Leu Val Met Glu Asn Leu Glu His Ala Leu Lys
 245 250 255
 Arg Gly Ala Pro Ile Ile Ala Glu Tyr Leu Gly Gly Ala Ile Thr Cys
 260 265 270
 Asp Ala His His Ile Thr Asp Pro Arg Ala Asp Gly Leu Gly Val Ser
 275 280 285
 Ser Cys Ile Val Met Ser Leu Val Asp Ala Gly Val Ser Pro Glu Glu
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Leu Ala Gly Asp Leu
 305 310 315 320
 Ala Glu Val Asn Ala Ile Lys Lys Val Phe Lys Asp Thr Ser Glu Ile
 325 330 335
 Lys Met Asn Gly Thr Lys Ser Met Ile Gly His Gly Leu Gly Ala Ser
 340 345 350
 Gly Gly Leu Glu Ala Ile Ala Thr Ile Lys Ala Ile Thr Thr Gly Trp
 355 360 365
 Leu His Pro Thr Ile Asn Gln Tyr Asp Leu Glu Pro Gln Val Thr Ile
 370 375 380
 Asp Thr Val Pro Asn Val Lys Lys Gln His Glu Val Asn Val Gly Ile
 385 390 395 400
 Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Val Val Val Phe Ala
 405 410 415
 Pro Tyr Lys Pro
 420

<210> 28
 <211> 420
 <212> PRT

<213> Cuphea hookeriana

<400> 28

Lys Lys Lys Pro Ser Ile Lys Gln Arg Arg Val Val Val Thr Gly Met
1 5 10 15
Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Asn Asn
20 25 30
Leu Leu Asp Gly Thr Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
35 40 45
Ala Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
50 55 60
Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
65 70 75 80
Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Thr Asn Gly Gly Ile
85 90 95
Thr Glu Asp Val Met Lys Glu Leu Asp Lys Arg Lys Cys Gly Val Leu
100 105 110
Ile Gly Ser Ala Met Gly Gly Met Lys Val Phe Asn Asp Ala Ile Glu
115 120 125
Ala Leu Arg Ile Ser Tyr Lys Lys Met Asn Pro Phe Cys Val Pro Phe
130 135 140
Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
145 150 155 160
Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
165 170 175
Cys Ile Leu Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Val
180 185 190
Met Leu Cys Gly Gly Ser Asp Ala Val Ile Ile Pro Ile Gly Met Gly
195 200 205
Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ala Asp Pro Thr
210 215 220
Lys Ala Ser Arg Pro Trp Asp Ser Asn Arg Asp Gly Phe Val Met Gly
225 230 235 240
Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
245 250 255
Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
260 265 270
Asp Ala Tyr His Met Thr Glu Pro His Pro Asp Gly Ala Gly Val Ile
275 280 285

Leu Cys Ile Glu Lys Ala Leu Ala Gln Ser Gly Val Ser Arg Glu Asp
 290 295 300

Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320

Lys Glu Tyr Gln Ala Leu Ile His Cys Phe Gly Gln Asn Asn Glu Leu
 325 330 335

Lys Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350

Gly Gly Val Glu Ala Val Ser Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365

Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Glu Gly Val Asp Thr
 370 375 380

Lys Leu Leu Val Gly Pro Lys Lys Glu Arg Leu Asn Ile Lys Val Gly
 385 390 395 400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Tyr Asn
 420

<210> 29
 <211> 420
 <212> PRT
 <213> Cuphea hookeriana

<400> 29

Asn Lys Lys Pro Ala Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Tyr Tyr Asn Asn
 20 25 30

Leu Leu Asp Gly Ile Ser Gly Ile Ser Glu Ile Glu Asn Phe Asp Cys
 35 40 45

Ser Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Phe Ser Glu Arg Met Asp Lys Phe Met
 65 70 75 80

Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Gly Gly Ile
 85 90 95

Thr Glu Asp Ala Met Lys Glu Leu Asn Lys Arg Lys Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Leu Gly Gly Met Lys Val Phe Ser Asp Ser Ile Glu

115					120					125					
Ala	Leu	Arg	Thr	Ser	Tyr	Lys	Lys	Ile	Ser	Pro	Phe	Cys	Val	Pro	Phe
130					135					140					
Ser	Thr	Thr	Asn	Met	Gly	Ser	Ala	Ile	Leu	Ala	Met	Asp	Leu	Gly	Trp
145					150					155					160
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe
165					170					175					
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Ile	Lys	Gly	Glu	Ala	Asp	Met
180					185					190					
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Ala	Val	Leu	Pro	Val	Gly	Leu	Gly
195					200					205					
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Asn	Asp	Pro	Thr
210					215					220					
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Ser	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly
225					230					235					240
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys
245					250					255					
Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys
260					265					270					
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	His	Pro	Glu	Gly	Ala	Gly	Val	Ile
275					280					285					
Leu	Cys	Ile	Glu	Lys	Ala	Leu	Ala	Gln	Ser	Gly	Val	Ser	Arg	Glu	Asp
290					295					300					
Val	Asn	Tyr	Ile	Asn	Ala	His	Ala	Thr	Ser	Thr	Pro	Ala	Gly	Asp	Ile
305					310					315					320
Lys	Glu	Tyr	Gln	Ala	Leu	Ala	His	Cys	Phe	Gly	Gln	Asn	Ser	Glu	Leu
325					330					335					
Arg	Val	Asn	Ser	Thr	Lys	Ser	Met	Ile	Gly	His	Leu	Leu	Gly	Gly	Ala
340					345					350					
Gly	Gly	Val	Glu	Ala	Val	Ala	Val	Val	Gln	Ala	Ile	Arg	Thr	Gly	Trp
355					360					365					
Ile	His	Pro	Asn	Ile	Asn	Leu	Glu	Asp	Pro	Asp	Glu	Gly	Val	Asp	Ala
370					375					380					
Lys	Leu	Leu	Val	Gly	Pro	Lys	Lys	Glu	Lys	Leu	Lys	Val	Lys	Val	Gly
385					390					395					400
Leu	Ser	Asn	Ser	Phe	Gly	Phe	Gly	Gly	His	Asn	Ser	Ser	Ile	Leu	Phe
405					410					415					
Ala Pro Cys Asn															

420

<210> 30
 <211> 420
 <212> PRT
 <213> Cuphea pullcherima

<400> 30

Lys	Lys	Lys	Pro	Ser	Ile	Lys	Gln	Arg	Arg	Val	Val	Val	Thr	Gly	Met
1				5					10					15	
Gly	Val	Val	Thr	Pro	Leu	Gly	His	Asp	Pro	Asp	Val	Phe	Tyr	Asn	Asn
			20					25					30		
Leu	Leu	Asp	Gly	Thr	Ser	Gly	Ile	Ser	Glu	Ile	Glu	Thr	Phe	Asp	Cys
		35					40					45			
Ala	Gln	Phe	Pro	Thr	Arg	Ile	Ala	Gly	Glu	Ile	Lys	Ser	Phe	Ser	Thr
	50					55					60				
Asp	Gly	Trp	Val	Ala	Pro	Lys	Leu	Ser	Lys	Arg	Met	Asp	Lys	Phe	Met
65					70					75					80
Leu	Tyr	Met	Leu	Thr	Ala	Gly	Lys	Lys	Ala	Leu	Thr	Asp	Gly	Gly	Ile
				85					90					95	
Thr	Glu	Asp	Val	Met	Lys	Glu	Leu	Asp	Lys	Arg	Lys	Cys	Gly	Val	Leu
			100					105					110		
Ile	Gly	Ser	Ala	Met	Gly	Gly	Met	Lys	Val	Phe	Asn	Asp	Ala	Ile	Glu
		115					120					125			
Ala	Leu	Arg	Ile	Ser	Tyr	Lys	Lys	Met	Asn	Pro	Phe	Cys	Val	Pro	Phe
	130					135					140				
Ala	Thr	Thr	Asn	Met	Gly	Ser	Ala	Met	Leu	Ala	Met	Asp	Leu	Gly	Trp
145					150				155					160	
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe
				165					170					175	
Cys	Ile	Met	Asn	Ala	Ala	Asn	His	Ile	Ile	Arg	Gly	Glu	Ala	Asp	Val
			180					185					190		
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Val	Ile	Ile	Pro	Ile	Gly	Met	Gly
	195						200					205			
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Ser	Asp	Pro	Thr
	210					215					220				
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Ser	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly
225					230					235					240
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys
				245				250						255	

Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Asp Gly Ala Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Lys Ala Leu Ala Gln Ser Gly Val Ser Arg Glu Asp
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320
 Lys Glu Tyr Gln Ala Leu Ile His Cys Phe Gly Gln Asn Arg Glu Leu
 325 330 335
 Lys Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Val Glu Ala Val Ser Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Glu Gly Val Asp Thr
 370 375 380
 Lys Leu Leu Val Gly Pro Lys Lys Glu Arg Leu Asn Val Lys Val Gly
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415
 Ala Pro Tyr Ile
 420

<210> 31
 <211> 421
 <212> PRT
 <213> Cuphea wrightii

<400> 31

Lys Lys Lys Pro Val Ile Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Thr Pro Leu Gly His Glu Pro Asp Val Phe Tyr Asn Asn
 20 25 30
 Leu Leu Asp Gly Val Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45
 Thr Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60
 Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80
 Leu Tyr Leu Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Gly Gly Ile
 85 90 95

Thr Asp Glu Val Met Lys Glu Leu Asp Lys Arg Lys Cys Gly Val Leu
 100 105 110
 Ile Gly Ser Gly Met Gly Gly Met Lys Val Phe Asn Asp Ala Ile Glu
 115 120 125
 Ala Leu Arg Val Ser Tyr Lys Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140
 Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
 145 150 155 160
 Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175
 Cys Ile Leu Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Met
 180 185 190
 Met Leu Cys Gly Gly Ser Asp Ala Val Ile Ile Pro Ile Gly Leu Gly
 195 200 205
 Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ser Asp Pro Thr
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Ser Asn Arg Asp Gly Phe Val Met Gly
 225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
 245 250 255
 Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Ala Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Lys Ala Leu Ala Gln Ala Gly Val Ser Lys Glu Asp
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Ser Ala Gly Asp Ile
 305 310 315 320
 Lys Glu Tyr Gln Ala Leu Ala Arg Cys Phe Gly Gln Asn Ser Glu Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Val Glu Ala Val Thr Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Leu Asn Leu Glu Asp Pro Asp Lys Ala Val Asp Ala
 370 375 380
 Lys Leu Leu Val Gly Pro Lys Lys Glu Arg Leu Asn Val Lys Val Gly
 385 390 395 400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Cys Asn Val
 420

<210> 32
 <211> 420
 <212> PRT
 <213> Cuphea wrightii

<400> 32

Lys Lys Lys Pro Val Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Asn Asn
 20 25 30

Leu Leu Asp Gly Val Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45

Thr Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80

Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Ala Gly Ile
 85 90 95

Thr Glu Asp Val Met Lys Glu Leu Asp Lys Arg Lys Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Met Gly Gly Met Lys Leu Phe Asn Asp Ser Ile Glu
 115 120 125

Ala Leu Arg Ile Ser Tyr Lys Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140

Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
 145 150 155 160

Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175

Cys Ile Leu Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Met
 180 185 190

Met Leu Cys Gly Gly Ser Asp Ala Ala Ile Ile Pro Ile Gly Leu Gly
 195 200 205

Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Asn Asp Pro Thr
 210 215 220

Lys Ala Ser Arg Pro Trp Asp Ser Asn Arg Asp Gly Phe Val Met Gly

225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
 245 250 255
 Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Ala Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Arg Ala Leu Ala Gln Ser Gly Val Ser Lys Glu Asp
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320
 Lys Glu Tyr Gln Ala Leu Ala Arg Ile Phe Ser Gln Asn Ser Glu Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Val Glu Ala Val Thr Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Asp Gly Val Asp Ala
 370 375 380
 Lys Leu Leu Val Gly Pro Lys Lys Glu Lys Leu Lys Val Lys Val Gly
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415
 Ala Pro Cys Asn
 420

<210> 33
 <211> 420
 <212> PRT
 <213> Hordeum vulgare

<400> 33

Lys Lys Arg Pro Asp Val Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Thr Asn
 20 25 30
 Leu Leu Asp Gly His Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45
 Ser Lys Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Glu Gly Trp Val Val Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80
 Leu Tyr Leu Ile Thr Ala Gly Lys Lys Ala Leu Glu Asn Gly Gly Leu
 85 90 95
 Thr Glu Glu Val Arg Asn Glu Leu Asp Lys Thr Arg Cys Gly Val Leu
 100 105 110
 Ile Gly Ser Ala Met Gly Gly Met Lys Val Phe Asn Asp Ala Ile Glu
 115 120 125
 Ala Leu Arg Val Ser Tyr Arg Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140
 Ala Thr Thr Asn Met Gly Ser Ala Ile Leu Ala Met Asp Leu Gly Trp
 145 150 155 160
 Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175
 Cys Ile Leu Asn Ala Ala Asn His Ile Arg Arg Gly Glu Ala Asp Val
 180 185 190
 Met Leu Cys Gly Gly Ser Asp Ala Pro Leu Ile Pro Ile Gly Leu Gly
 195 200 205
 Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ser Asp Pro Thr
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Met Asp Arg Asp Gly Phe Val Met Gly
 225 230 235 240
 Glu Gly Ala Gly Val Leu Val Leu Glu Glu Leu Glu His Ala Lys Gln
 245 250 255
 Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Thr Gly Ile Thr
 275 280 285
 Leu Cys Ile Glu Lys Ala Leu Ala Asp Ser Gly Val Ala Arg Glu Glu
 290 295 300
 Ile Asn Tyr Val Asn Ala His Ala Thr Ser Thr Gln Ser Gly Asp Leu
 305 310 315 320
 Lys Glu Tyr Glu Ala Ile Val Arg Cys Phe Gly Gln Asn Pro Gln Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Thr Gly His Leu Ile Gly Ala Ala
 340 345 350
 Gly Gly Ile Glu Ala Val Ala Cys Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365

Val His Pro Asn Leu Asn Leu Glu Asn Pro Glu Lys Val Val Asp Val
 370 375 380

Gly Val Leu Val Gly Ser Glu Lys Glu Arg Cys Glu Val Lys Val Ala
 385 390 395 400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Phe Lys
 420

<210> 34
 <211> 419
 <212> PRT
 <213> Hordeum vulgare

<400> 34

Asn Asn Lys Ser Glu Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Glu Pro Asp Glu Phe Tyr Asn Asn
 20 25 30

Leu Leu Gln Gly Val Ser Gly Val Ser Glu Ile Glu Ala Phe Asp Cys
 35 40 45

Ser Ser Tyr Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Leu Ala Lys Arg Met Asp Lys Phe Met
 65 70 75 80

Gln Tyr Leu Ile Val Ala Gly Lys Lys Ala Leu Asp Asn Gly Gly Val
 85 90 95

Thr Glu Asp Ile Met Asn Glu Leu Asp Lys Ser Arg Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Met Gly Gly Met Lys Val Phe Ser Asp Ala Ile Glu
 115 120 125

Ala Leu Arg Val Ser Tyr Arg Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140

Ala Thr Thr Asn Met Gly Ser Ala Val Leu Ala Met Asp Leu Gly Trp
 145 150 155 160

Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175

Cys Ile Leu Ser Ala Ala Asn His Ile Met Arg Gly Glu Thr Asp Leu
 180 185 190

Met Leu Cys Gly Gly Ser Asp Ala Pro Ile Ile Pro Ile Gly Leu Gly
 195 200 205

Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ser Asp Pro Thr
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Val Asp Arg Asp Gly Phe Val Met Gly
 225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Gln
 245 250 255
 Arg Gly Ala Glu Ile Tyr Ala Glu Phe Leu Gly Gly Asn Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Lys Gly Val Ile
 275 280 285
 Leu Cys Val Glu Asn Ala Leu Ala Asp Ala Gly Val Thr Arg Gln Asp
 290 295 300
 Ile Asn Tyr Val Asn Ala His Ala Thr Ser Thr Gln Leu Gly Asp Leu
 305 310 315 320
 Lys Glu Phe Glu Ala Leu Arg Arg Cys Phe Gly Gln Asn Pro Gln Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Thr Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Ile Glu Ala Val Ala Ala Ile Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Asn Asn Pro Glu Lys Asn Val Asp Val
 370 375 380
 Ser Leu Leu Val Gly Ser Gln Lys Glu Arg Cys Asp Val Lys Val Ala
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Phe

<210> 35
 <211> 420
 <212> PRT
 <213> Ricinus communis

<400> 35

Asn Lys Lys Pro Leu Met Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Ser Pro Leu Gly His Asp Ile Asp Val Tyr Tyr Asn Asn
 20 25 30
 Leu Leu Asp Gly Ser Ser Gly Ile Ser Gln Ile Asp Ser Phe Asp Cys

35

40

45

Ala Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60
 Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80
 Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Gly Gly Ile
 85 90 95
 Thr Glu Asp Met Met Asp Glu Leu Asp Lys Ala Arg Cys Gly Val Leu
 100 105 110
 Ile Gly Ser Ala Met Gly Gly Met Lys Val Phe Asn Asp Ala Ile Glu
 115 120 125
 Ala Leu Arg Ile Ser Tyr Arg Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140
 Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
 145 150 155 160
 Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175
 Cys Ile Leu Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Ile
 180 185 190
 Met Leu Cys Gly Gly Ser Asp Ala Ala Ile Ile Pro Ile Gly Leu Gly
 195 200 205
 Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Asp Asp Pro Thr
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Met Asn Arg Asp Gly Phe Val Met Gly
 225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
 245 250 255
 Arg Gly Ala Asn Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro Arg Pro Asp Gly Val Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Lys Ala Leu Ala Arg Ser Gly Val Ser Lys Glu Glu
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Leu
 305 310 315 320
 Lys Glu Tyr Glu Ala Leu Met Arg Cys Phe Ser Gln Asn Pro Asp Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala

340 345 350
 Gly Ala Val Glu Ala Ile Ala Thr Ile Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Val His Pro Asn Ile Asn Leu Glu Asn Pro Glu Glu Gly Val Asp Thr
 370 375 380
 Lys Val Leu Val Gly Pro Lys Lys Glu Arg Leu Asp Ile Lys Val Ala
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Ile Phe
 405 410 415
 Ala Pro Tyr Lys
 420

<210> 36
 <211> 413
 <212> PRT
 <213> Caenorhabditis elegans

<220>
 <221> misc_feature
 <222> (53)..(53)
 <223> Xaa in position 53 in unknown.

<400> 36

Met Lys Leu Lys Ile Asn Lys Asn Phe Glu Met His Arg Val Val Ile
 1 5 10 15
 Thr Gly Met Gly Ala Ile Ser Pro Phe Gly Val Thr Val Asn Ala Leu
 20 25 30
 Arg Asn Gly Leu Asn Glu Gly Arg Ser Gly Leu Lys Tyr Asp Glu Ile
 35 40 45
 Leu Lys Phe Val Xaa Gly Ala Val Pro Gly Glu Arg Val Glu Asp Arg
 50 55 60
 Trp Ser Thr Gly Gln Gln Arg Glu Met Ser Lys Ala Ser Met Phe Val
 65 70 75 80
 Leu Ala Ala Ser Glu Glu Ala Leu Lys Gln Ala Lys Ala Glu Asp Val
 85 90 95
 Asp His Asn Glu Thr Leu Val Asn Ile Gly Thr Cys Met Ser Asp Leu
 100 105 110
 Glu His Ile Gly Glu Thr Ala Gln Lys Val Ser Glu Gly Gln Ser Arg
 115 120 125
 Arg Val Ser Pro Tyr Phe Val Pro Arg Ile Leu Asn Asn Leu Pro Ala
 130 135 140

Gly Tyr Val Ala Met Lys Tyr Lys Met Arg Gly Gly Val Glu Ser Thr
 145 150 155 160
 Ser Thr Ala Cys Ala Thr Gly Leu His Cys Ile Gly Asn Ser Phe Arg
 165 170 175
 Ser Ile Arg Tyr Gly Asp Ser Arg Arg Ala Leu Ala Gly Ala Val Glu
 180 185 190
 Cys Ala Leu Asn Pro Ile Ala Leu Ala Gly Phe Asp Arg Met Arg Ala
 195 200 205
 Leu Ala Arg Gly Asp Gln Pro Asn Ile Ser Arg Pro Phe Asp Lys Lys
 210 215 220
 Arg Ala Gly Phe Val Met Ser Glu Gly Val Gly Leu Val Phe Met Glu
 225 230 235 240
 Arg Leu Glu Asp Ala Gln Ala Arg Gly Ala Gln Ile Leu Ala Glu Val
 245 250 255
 Val Gly Tyr Gly Ile Ser Ser Asp Cys Tyr His Ile Ser Thr Pro Asp
 260 265 270
 Pro Ser Ala Ile Gly Ala Val Leu Ser Met Asn Arg Ala Ile Gly Asn
 275 280 285
 Ala His Leu Glu Pro Lys Asp Ile Gly Tyr Val Asn Ala His Ala Thr
 290 295 300
 Ser Thr Pro Asn Gly Asp Ser Val Glu Ala Glu Ala Val Arg Gln Val
 305 310 315 320
 Phe Pro Glu Gln Asn Ile Ala Val Ser Ser Val Lys Gly His Ile Gly
 325 330 335
 His Leu Leu Gly Ala Ala Gly Ser Val Glu Ala Ile Ala Thr Ile Phe
 340 345 350
 Ala Met Asn Asp Asp Val Leu Pro Ala Asn Arg Asn Leu Glu Glu Thr
 355 360 365
 Asp Glu Gly Asn Gly Leu Asn Leu Leu Arg Glu Asn Gln Lys Trp Ser
 370 375 380
 Asp Val Ser Gly Asn Lys Ser Arg Ile Ser Ile Cys Asn Ser Phe Gly
 385 390 395 400
 Phe Gly Ala Thr Asn Ala Ser Leu Ile Leu Lys Gln Phe
 405 410

<210> 37
 <211> 442
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 37

Met Ser Arg Arg Val Val Ile Thr Gly Leu Gly Cys Val Thr Pro Leu
 1 5 10 15
 Gly Arg Ser Leu Ser Glu Ser Trp Gly Asn Leu Leu Ser Ser Lys Asn
 20 25 30
 Gly Leu Thr Pro Ile Thr Ser Leu Pro Asn Tyr Asn Glu Asp Tyr Lys
 35 40 45
 Leu Arg Glu Lys Ser Ile Pro Ser Thr Ile Thr Val Gly Lys Ile Pro
 50 55 60
 Glu Asn Phe Gln Asn Glu Asn Ser Ala Ile Asn Lys Leu Leu Phe Thr
 65 70 75 80
 Ser Gln Asp Glu Arg Arg Thr Ser Ser Phe Ile Lys Leu Ala Leu Arg
 85 90 95
 Thr Thr Tyr Glu Ala Leu His Asn Ala Gly Leu Leu Asn Pro Asn Asp
 100 105 110
 Ile Thr Ile Asn Thr Ser Leu Cys Asn Leu Asp His Phe Gly Cys Leu
 115 120 125
 Ile Gly Ser Gly Ile Gly Ser Ile Gln Asp Ile Tyr Gln Thr Ser Leu
 130 135 140
 Gln Phe His Asn Asp Asn Lys Arg Ile Asn Pro Tyr Phe Val Pro Lys
 145 150 155 160
 Ile Leu Thr Asn Met Ala Ala Gly Asn Val Ser Ile Lys Phe Asn Leu
 165 170 175
 Arg Gly Leu Ser His Ser Val Ser Thr Ala Cys Ala Thr Gly Asn Asn
 180 185 190
 Ser Ile Gly Asp Ala Phe Asn Phe Ile Arg Leu Gly Met Gln Asp Ile
 195 200 205
 Cys Val Ala Gly Ala Ser Glu Thr Ser Leu His Pro Leu Ser Leu Ala
 210 215 220
 Gly Phe Ile Arg Ala Lys Ser Ile Thr Thr Asn Gly Ile Ser Arg Pro
 225 230 235 240
 Phe Asp Thr Gln Arg Ser Gly Phe Val Leu Gly Glu Gly Cys Gly Met
 245 250 255
 Ile Val Met Glu Ser Leu Glu His Ala Gln Lys Arg Asn Ala Asn Ile
 260 265 270
 Ile Ser Glu Leu Val Gly Tyr Gly Leu Ser Ser Asp Ala Cys His Ile
 275 280 285
 Thr Ser Pro Pro Ala Asp Gly Asn Gly Ala Lys Arg Ala Ile Glu Met
 290 295 300

Ala Leu Lys Met Ala Arg Leu Glu Pro Thr Asp Val Asp Tyr Val Asn
 305 310 315 320
 Ala His Ala Thr Ser Thr Leu Leu Gly Asp Lys Ala Glu Cys Leu Ala
 325 330 335
 Val Ala Ser Ala Leu Leu Pro Gly Arg Ser Lys Ser Lys Pro Leu Tyr
 340 345 350
 Ile Ser Ser Asn Lys Gly Ala Ile Gly His Leu Leu Gly Ala Ala Gly
 355 360 365
 Ala Val Glu Ser Ile Phe Thr Ile Cys Ser Leu Lys Asp Asp Lys Met
 370 375 380
 Pro His Thr Leu Asn Leu Asp Asn Val Leu Thr Leu Glu Asn Asn Glu
 385 390 395 400
 Ala Asp Lys Leu His Phe Ile Arg Asp Lys Pro Ile Val Gly Ala Asn
 405 410 415
 Pro Lys Tyr Ala Leu Cys Asn Ser Phe Gly Phe Gly Gly Val Asn Thr
 420 425 430
 Ser Leu Leu Phe Lys Lys Trp Glu Gly Ser
 435 440
 <210> 38
 <211> 410
 <212> PRT
 <213> Escherichia coli
 <400> 38
 Met Ser Lys Arg Arg Val Val Val Thr Gly Leu Gly Met Leu Ser Pro
 1 5 10 15
 Val Gly Asn Thr Val Glu Ser Thr Trp Lys Ala Leu Leu Ala Gly Gln
 20 25 30
 Ser Gly Ile Ser Leu Ile Asp His Phe Asp Thr Ser Ala Tyr Ala Thr
 35 40 45
 Lys Phe Ala Gly Leu Val Lys Asp Phe Asn Cys Glu Asp Ile Ile Ser
 50 55 60
 Arg Lys Glu Gln Arg Lys Met Asp Ala Phe Ile Gln Tyr Gly Ile Val
 65 70 75 80
 Ala Gly Val Gln Ala Met Gln Asp Ser Gly Leu Glu Ile Thr Glu Glu
 85 90 95
 Asn Ala Thr Arg Ile Gly Ala Ala Ile Gly Ser Gly Ile Gly Gly Leu
 100 105 110
 Gly Leu Ile Glu Glu Asn His Thr Ser Leu Met Asn Gly Gly Pro Arg

115	120	125
Lys Ile Ser Pro Phe Phe Val Pro Ser Thr Ile Val Asn Met Val Ala 130 135 140		
Gly His Leu Thr Ile Met Tyr Gly Leu Arg Gly Pro Ser Ile Ser Ile 145 150 155 160		
Ala Thr Ala Cys Thr Ser Gly Val His Asn Ile Gly His Ala Ala Arg 165 170 175		
Ile Ile Ala Tyr Gly Asp Ala Asp Val Met Val Ala Gly Gly Ala Glu 180 185 190		
Lys Ala Ser Thr Pro Leu Gly Val Gly Gly Phe Gly Ala Ala Arg Ala 195 200 205		
Leu Ser Thr Arg Asn Asp Asn Pro Gln Ala Ala Ser Arg Pro Trp Asp 210 215 220		
Lys Glu Arg Asp Gly Phe Val Leu Gly Asp Gly Ala Gly Met Leu Val 225 230 235 240		
Leu Glu Glu Tyr Glu His Ala Lys Lys Arg Gly Ala Lys Ile Tyr Ala 245 250 255		
Glu Leu Val Gly Phe Gly Met Ser Ser Asp Ala Tyr His Met Thr Ser 260 265 270		
Pro Pro Glu Asn Gly Ala Gly Ala Ala Leu Ala Met Ala Asn Ala Leu 275 280 285		
Arg Asp Ala Gly Ile Glu Ala Ser Gln Ile Gly Tyr Val Asn Ala His 290 295 300		
Gly Thr Ser Thr Pro Ala Gly Asp Lys Ala Glu Ala Gln Ala Val Lys 305 310 315 320		
Thr Ile Phe Gly Glu Ala Ala Ser Arg Val Leu Val Ser Ser Thr Lys 325 330 335		
Ser Met Thr Gly His Leu Leu Gly Ala Ala Gly Ala Val Glu Ser Ile 340 345 350		
Tyr Ser Ile Leu Ala Leu Arg Asp Gln Ala Val Pro Pro Thr Ile Asn 355 360 365		
Leu Asp Asn Pro Asp Glu Gly Cys Asp Leu Asp Phe Val Pro His Glu 370 375 380		
Ala Arg Gln Val Ser Gly Met Glu Tyr Thr Leu Cys Asn Ser Phe Gly 385 390 395 400		
Phe Gly Gly Thr Asn Gly Ser Leu Ile Phe 405 410		

<210> 39

<211> 406
 <212> PRT
 <213> Escherichia coli

<400> 39

Met	Lys	Arg	Ala	Val	Ile	Thr	Gly	Leu	Gly	Ile	Val	Ser	Ser	Ile	Gly	1	5	10	15
Asn	Asn	Gln	Gln	Glu	Val	Leu	Ala	Ser	Leu	Arg	Glu	Gly	Arg	Ser	Gly	20	25	30	
Ile	Thr	Phe	Ser	Gln	Glu	Leu	Lys	Asp	Ser	Gly	Met	Arg	Ser	His	Val	35	40	45	
Trp	Gly	Asn	Val	Lys	Leu	Asp	Thr	Thr	Gly	Leu	Ile	Asp	Arg	Lys	Val	50	55	60	
Val	Arg	Phe	Met	Ser	Asp	Ala	Ser	Ile	Tyr	Ala	Phe	Leu	Ser	Met	Glu	65	70	75	80
Gln	Ala	Ile	Ala	Asp	Ala	Gly	Leu	Ser	Pro	Glu	Ala	Tyr	Gln	Asn	Asn	85	90	95	
Pro	Arg	Val	Gly	Leu	Ile	Ala	Gly	Ser	Gly	Gly	Gly	Ser	Pro	Arg	Phe	100	105	110	
Gln	Val	Phe	Gly	Ala	Asp	Ala	Met	Arg	Gly	Pro	Arg	Gly	Leu	Lys	Ala	115	120	125	
Val	Gly	Pro	Tyr	Val	Val	Thr	Lys	Ala	Met	Ala	Ser	Gly	Val	Ser	Ala	130	135	140	
Cys	Leu	Ala	Thr	Pro	Phe	Lys	Ile	His	Gly	Val	Asn	Tyr	Ser	Ile	Ser	145	150	155	160
Ser	Ala	Cys	Ala	Thr	Ser	Ala	His	Cys	Ile	Gly	Asn	Ala	Val	Glu	Gln	165	170	175	
Ile	Gln	Leu	Gly	Lys	Gln	Asp	Ile	Val	Phe	Ala	Gly	Gly	Gly	Glu	Glu	180	185	190	
Leu	Cys	Trp	Glu	Met	Ala	Cys	Glu	Phe	Asp	Ala	Met	Gly	Ala	Leu	Ser	195	200	205	
Thr	Lys	Tyr	Asn	Asp	Thr	Pro	Glu	Lys	Ala	Ser	Arg	Thr	Tyr	Asp	Ala	210	215	220	
His	Arg	Asp	Gly	Phe	Val	Ile	Ala	Gly	Gly	Gly	Gly	Met	Val	Val	Val	225	230	235	240
Glu	Glu	Leu	Glu	His	Ala	Leu	Ala	Arg	Gly	Ala	His	Ile	Tyr	Ala	Glu	245	250	255	
Ile	Val	Gly	Tyr	Gly	Ala	Thr	Ser	Asp	Gly	Ala	Asp	Met	Val	Ala	Pro	260	265	270	

Ser Gly Glu Gly Ala Val Arg Cys Met Lys Met Ala Met His Gly Val
 275 280 285
 Asp Thr Pro Ile Asp Tyr Leu Asn Ser His Gly Thr Ser Thr Pro Val
 290 295 300
 Gly Asp Val Lys Glu Leu Ala Ala Ile Arg Glu Val Phe Gly Asp Lys
 305 310 315 320
 Ser Pro Ala Ile Ser Ala Thr Lys Ala Met Thr Gly His Ser Leu Gly
 325 330 335
 Ala Ala Gly Val Gln Glu Ala Ile Tyr Ser Leu Leu Met Leu Glu His
 340 345 350
 Gly Phe Ile Ala Pro Ser Ile Asn Ile Glu Glu Leu Asp Glu Gln Ala
 355 360 365
 Ala Gly Leu Asn Ile Val Thr Glu Thr Thr Asp Arg Glu Leu Thr Thr
 370 375 380
 Val Met Ser Asn Ser Phe Gly Phe Gly Gly Thr Asn Ala Thr Leu Val
 385 390 395 400
 Met Arg Lys Leu Lys Asp
 405

<210> 40
 <211> 416
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 40

Met Ser Gln Pro Ser Thr Ala Asn Gly Gly Phe Pro Ser Val Val Val
 1 5 10 15
 Thr Ala Val Thr Ala Thr Thr Ser Ile Ser Pro Asp Ile Glu Ser Thr
 20 25 30
 Trp Lys Gly Leu Leu Ala Gly Glu Ser Gly Ile His Ala Leu Glu Asp
 35 40 45
 Glu Phe Val Thr Lys Trp Asp Leu Ala Val Lys Ile Gly Gly His Leu
 50 55 60
 Lys Asp Pro Val Asp Ser His Met Gly Arg Leu Asp Met Arg Arg Met
 65 70 75 80
 Ser Tyr Val Gln Arg Met Gly Lys Leu Leu Gly Gly Gln Leu Trp Glu
 85 90 95
 Ser Ala Gly Ser Pro Glu Val Asp Pro Asp Arg Phe Ala Val Val Val
 100 105 110
 Gly Thr Gly Leu Gly Gly Ala Glu Arg Ile Val Glu Ser Tyr Asp Leu
 115 120 125

Met Asn Ala Gly Gly Pro Arg Lys Val Ser Pro Leu Ala Val Gln Met
 130 135 140
 Ile Met Pro Asn Gly Ala Ala Ala Val Ile Gly Leu Gln Leu Gly Ala
 145 150 155 160
 Arg Ala Gly Val Met Thr Pro Val Ser Ala Cys Ser Ser Gly Ser Glu
 165 170 175
 Ala Ile Ala His Ala Trp Arg Gln Ile Val Met Gly Asp Ala Asp Val
 180 185 190
 Ala Val Cys Gly Gly Val Glu Gly Pro Ile Glu Ala Leu Pro Ile Ala
 195 200 205
 Ala Phe Ser Met Met Arg Ala Met Ser Thr Arg Asn Asp Glu Pro Glu
 210 215 220
 Arg Ala Ser Arg Pro Phe Asp Lys Asp Arg Asp Gly Phe Val Phe Gly
 225 230 235 240
 Glu Ala Gly Ala Leu Met Leu Ile Glu Thr Glu Glu His Ala Lys Ala
 245 250 255
 Arg Gly Ala Lys Pro Leu Ala Arg Leu Leu Gly Ala Gly Ile Thr Ser
 260 265 270
 Asp Ala Phe His Met Val Ala Pro Ala Ala Asp Gly Val Arg Ala Gly
 275 280 285
 Arg Ala Met Thr Arg Ser Leu Glu Leu Ala Gly Leu Ser Pro Ala Asp
 290 295 300
 Ile Asp His Val Asn Ala His Gly Thr Ala Thr Pro Ile Gly Asp Ala
 305 310 315 320
 Ala Glu Ala Asn Ala Ile Arg Val Ala Gly Cys Asp Gln Ala Ala Val
 325 330 335
 Tyr Ala Pro Lys Ser Ala Leu Gly His Ser Ile Gly Ala Val Gly Ala
 340 345 350
 Leu Glu Ser Val Leu Thr Val Leu Thr Leu Arg Asp Gly Val Ile Pro
 355 360 365
 Pro Thr Leu Asn Tyr Glu Thr Pro Asp Pro Glu Ile Asp Leu Asp Val
 370 375 380
 Val Ala Gly Glu Pro Arg Tyr Gly Asp Tyr Arg Tyr Ala Val Asn Asn
 385 390 395 400
 Ser Phe Gly Phe Gly Gly His Asn Val Ala Leu Ala Phe Gly Arg Tyr
 405 410 415

<210> 41
 <211> 438

<212> PRT

<213> Mycobacterium tuberculosis

<400> 41

Met Gly Val Pro Pro Leu Ala Gly Ala Ser Arg Thr Asp Met Glu Gly
1 5 10 15

Thr Phe Ala Arg Pro Met Thr Glu Leu Val Thr Gly Lys Ala Phe Pro
20 25 30

Tyr Val Val Val Thr Gly Ile Ala Met Thr Thr Ala Leu Ala Thr Asp
35 40 45

Ala Glu Thr Thr Trp Lys Leu Leu Leu Asp Arg Gln Ser Gly Ile Arg
50 55 60

Thr Leu Asp Asp Pro Phe Val Glu Glu Phe Asp Leu Pro Val Arg Ile
65 70 75 80

Gly Gly His Leu Leu Glu Glu Phe Asp His Gln Leu Thr Arg Ile Glu
85 90 95

Leu Arg Arg Met Gly Tyr Leu Gln Arg Met Ser Thr Val Leu Ser Arg
100 105 110

Arg Leu Trp Glu Asn Ala Gly Ser Pro Glu Val Asp Thr Asn Arg Leu
115 120 125

Met Val Ser Ile Gly Thr Gly Leu Gly Ser Ala Glu Glu Leu Val Phe
130 135 140

Ser Tyr Asp Asp Met Arg Ala Arg Gly Met Lys Ala Val Ser Pro Leu
145 150 155 160

Thr Val Gln Lys Tyr Met Pro Asn Gly Ala Ala Ala Ala Val Gly Leu
165 170 175

Glu Arg His Ala Lys Ala Gly Val Met Thr Pro Val Ser Ala Cys Ala
180 185 190

Ser Gly Ala Glu Ala Ile Ala Arg Ala Trp Gln Gln Ile Val Leu Gly
195 200 205

Glu Ala Asp Ala Ala Ile Cys Gly Gly Val Glu Thr Arg Ile Glu Ala
210 215 220

Val Pro Ile Ala Gly Phe Ala Gln Met Arg Ile Val Met Ser Thr Asn
225 230 235 240

Asn Asp Asp Pro Ala Gly Ala Cys Arg Pro Phe Asp Arg Asp Arg Asp
245 250 255

Gly Phe Val Phe Gly Glu Gly Gly Ala Leu Leu Leu Ile Glu Thr Glu
260 265 270

Glu His Ala Lys Ala Arg Gly Ala Asn Ile Leu Ala Arg Ile Met Gly

275 280 285
 Ala Ser Ile Thr Ser Asp Gly Phe His Met Val Ala Pro Asp Pro Asn
 290 295 300
 Gly Glu Arg Ala Gly His Ala Ile Thr Arg Ala Ile Gln Leu Ala Gly
 305 310 315 320
 Leu Ala Pro Gly Asp Ile Asp His Val Asn Ala His Ala Thr Gly Thr
 325 330 335
 Gln Val Gly Asp Leu Ala Glu Gly Arg Ala Ile Asn Asn Ala Leu Gly
 340 345 350
 Gly Asn Arg Pro Ala Val Tyr Ala Pro Lys Ser Ala Leu Gly His Ser
 355 360 365
 Val Gly Ala Val Gly Ala Val Glu Ser Ile Leu Thr Val Leu Ala Leu
 370 375 380
 Arg Asp Gln Val Ile Pro Pro Thr Leu Asn Leu Val Asn Leu Asp Pro
 385 390 395 400
 Glu Ile Asp Leu Asp Val Val Ala Gly Glu Pro Arg Pro Gly Asn Tyr
 405 410 415
 Arg Tyr Ala Ile Asn Asn Ser Phe Gly Phe Gly Gly His Asn Val Ala
 420 425 430
 Ile Ala Phe Gly Arg Tyr
 435

<210> 42
 <211> 418
 <212> PRT
 <213> Rattus norvegicus

<400> 42

Ser Arg Ala Ser Arg Gln Arg Arg Ala Met Glu Glu Val Val Ile Ala
 1 5 10 15
 Gly Met Ser Gly Lys Leu Pro Glu Ser Glu Asn Leu Gln Glu Phe Trp
 20 25 30
 Ala Asn Leu Ile Gly Gly Val Asp Met Val Thr Asp Asp Asp Arg Arg
 35 40 45
 Trp Lys Ala Gly Leu Tyr Gly Leu Pro Lys Arg Ser Gly Lys Leu Lys
 50 55 60
 Asp Leu Ser Lys Phe Asp Ala Ser Phe Phe Gly Val His Pro Lys Gln
 65 70 75 80
 Ala His Thr Met Asp Pro Gln Leu Arg Leu Leu Leu Glu Val Ser Tyr
 85 90 95

Glu Ala Ile Val Asp Gly Gly Ile Asn Pro Ala Ser Leu Arg Gly Thr
 100 105 110
 Asn Thr Gly Val Trp Val Gly Val Ser Gly Ser Glu Ala Ser Glu Ala
 115 120 125
 Leu Ser Arg Asp Pro Glu Thr Leu Leu Gly Tyr Ser Met Val Gly Cys
 130 135 140
 Gln Arg Ala Met Met Ala Asn Arg Leu Ser Phe Phe Phe Asp Phe Lys
 145 150 155 160
 Gly Pro Ser Ile Ala Leu Asp Thr Ala Cys Ser Ser Ser Leu Leu Ala
 165 170 175
 Leu Gln Asn Ala Tyr Gln Ala Ile Arg Ser Gly Glu Cys Pro Ala Ala
 180 185 190
 Ile Val Gly Gly Ile Asn Leu Leu Leu Lys Pro Asn Thr Ser Val Gln
 195 200 205
 Phe Met Lys Leu Gly Met Leu Ser Pro Asp Gly Thr Cys Arg Ser Phe
 210 215 220
 Asp Asp Ser Gly Asn Gly Tyr Cys Arg Ala Glu Ala Val Val Ala Val
 225 230 235 240
 Leu Leu Thr Lys Lys Ser Leu Ala Arg Arg Val Tyr Ala Thr Ile Leu
 245 250 255
 Asn Ala Gly Thr Asn Thr Asp Gly Cys Lys Glu Gln Gly Val Thr Phe
 260 265 270
 Pro Ser Gly Glu Ala Gln Glu Gln Leu Ile Arg Ser Leu Tyr Gln Pro
 275 280 285
 Gly Gly Val Ala Pro Glu Ser Leu Glu Tyr Ile Glu Ala His Gly Thr
 290 295 300
 Gly Thr Lys Val Gly Asp Pro Gln Glu Leu Asn Gly Ile Thr Arg Ser
 305 310 315 320
 Leu Cys Ala Phe Arg Gln Ser Pro Leu Leu Ile Gly Ser Thr Lys Ser
 325 330 335
 Asn Met Gly His Pro Glu Pro Ala Ser Gly Leu Ala Ala Leu Thr Lys
 340 345 350
 Val Leu Leu Ser Leu Glu Asn Gly Val Trp Ala Pro Asn Leu His Phe
 355 360 365
 His Asn Pro Asn Pro Glu Ile Pro Ala Leu Leu Asp Gly Arg Leu Gln
 370 375 380
 Val Val Asp Arg Pro Leu Pro Val Arg Gly Gly Ile Val Gly Ile Asn
 385 390 395 400

Ser Phe Gly Phe Gly Gly Ala Asn Val His Val Ile Leu Gln Pro Asn
405 410 415

Ala Ser

<210> 43
<211> 401
<212> PRT
<213> Rhizobium sp. Nodulation Protein E

<400> 43

Met Asp Arg Arg Val Val Ile Thr Gly Ile Gly Gly Leu Cys Gly Leu
1 5 10 15

Gly Thr Asn Ala Ala Ser Ile Trp Lys Glu Met Arg Glu Gly Pro Ser
20 25 30

Ala Ile Ser Pro Ile Ile Thr Thr Asp Leu Tyr Asp Leu Glu Gly Thr
35 40 45

Val Gly Leu Glu Ile Lys Ala Ile Pro Glu His Asp Ile Pro Arg Lys
50 55 60

Gln Leu Val Ser Met Asp Arg Phe Ser Leu Leu Ala Val Ile Ala Ala
65 70 75 80

Thr Glu Ala Met Lys Gln Ala Gly Leu Ser Cys Asp Glu Gln Asn Ala
85 90 95

His Arg Phe Gly Ala Ala Met Gly Leu Gly Gly Pro Gly Trp Asp Thr
100 105 110

Ile Glu Glu Thr Tyr Arg Ser Ile Leu Leu Asp Gly Val Thr Arg Ala
115 120 125

Arg Ile Phe Thr Ala Pro Lys Gly Met Pro Ser Ala Ala Ala Gly His
130 135 140

Val Ser Ile Phe Leu Gly Leu Arg Gly Pro Val Phe Gly Val Thr Ser
145 150 155 160

Ala Cys Ala Ala Gly Asn His Ala Ile Ala Ser Ala Val Asp Gln Ile
165 170 175

Arg Leu Gly Arg Ala Asp Val Met Leu Ala Gly Gly Ser Asp Ala Pro
180 185 190

Leu Thr Trp Gly Val Leu Lys Ser Trp Glu Ala Leu Arg Val Leu Ala
195 200 205

Pro Asp Thr Cys Arg Pro Phe Ser Ala Asp Arg Lys Gly Val Val Leu
210 215 220

Gly Glu Gly Ala Gly Met Ala Val Leu Glu Ser Tyr Glu His Ala Ala
225 230 235 240

85										90										95									
Ala	His	Arg	Val	Gly	Val	Cys	Val	Gly	Thr	Ala	Val	Gly	Cys	Thr	Gln														
			100					105						110															
Lys	Leu	Glu	Ser	Glu	Tyr	Val	Ala	Leu	Ser	Ala	Gly	Gly	Ala	His	Trp														
		115					120					125																	
Val	Val	Asp	Pro	Gly	Arg	Gly	Ser	Pro	Glu	Leu	Tyr	Asp	Tyr	Phe	Val														
		130				135						140																	
Pro	Ser	Ser	Leu	Ala	Ala	Glu	Val	Ala	Trp	Leu	Ala	Gly	Ala	Glu	Gly														
145					150					155				160															
Pro	Val	Asn	Ile	Val	Ser	Ala	Gly	Cys	Thr	Ser	Gly	Ile	Asp	Ser	Ile														
			165					170					175																
Gly	Tyr	Ala	Cys	Glu	Leu	Ile	Arg	Glu	Gly	Thr	Val	Asp	Ala	Met	Val														
		180						185					190																
Ala	Gly	Gly	Val	Asp	Ala	Pro	Ile	Ala	Pro	Ile	Thr	Val	Ala	Cys	Phe														
		195					200					205																	
Asp	Ala	Ile	Arg	Ala	Thr	Ser	Asp	His	Asn	Asp	Thr	Pro	Glu	Thr	Ala														
		210				215					220																		
Ser	Arg	Pro	Phe	Ser	Arg	Ser	Arg	Asn	Gly	Phe	Val	Leu	Gly	Glu	Gly														
225					230					235				240															
Gly	Ala	Ile	Val	Val	Leu	Glu	Glu	Ala	Glu	Ala	Ala	Val	Arg	Arg	Gly														
			245					250					255																
Ala	Arg	Ile	Tyr	Ala	Glu	Ile	Gly	Gly	Tyr	Ala	Ser	Arg	Gly	Asn	Ala														
		260						265					270																
Tyr	His	Met	Thr	Gly	Leu	Arg	Ala	Asp	Gly	Ala	Glu	Met	Ala	Ala	Ala														
		275					280					285																	
Ile	Thr	Ala	Ala	Leu	Asp	Glu	Ala	Arg	Arg	Asp	Pro	Ser	Asp	Val	Asp														
		290				295				300																			
Tyr	Val	Asn	Ala	His	Gly	Thr	Ala	Thr	Lys	Gln	Asn	Asp	Arg	His	Glu														
305					310					315				320															
Thr	Ser	Ala	Phe	Lys	Arg	Ser	Leu	Gly	Glu	His	Ala	Tyr	Arg	Val	Pro														
			325						330				335																
Ile	Ser	Ser	Ile	Lys	Ser	Met	Ile	Gly	His	Ser	Leu	Gly	Ala	Val	Gly														
			340					345					350																
Ser	Leu	Glu	Val	Ala	Ala	Thr	Ala	Leu	Ala	Val	Glu	Tyr	Gly	Val	Ile														
		355					360					365																	
Pro	Pro	Thr	Ala	Asn	Leu	His	Asp	Pro	Asp	Pro	Glu	Leu	Asp	Leu	Asp														
		370				375				380																			
Tyr	Val	Pro	Leu	Thr	Ala	Arg	Glu	Lys	Arg	Val	Arg	His	Ala	Leu	Thr														

385 390 395 400

Val Gly Ser Gly Phe Gly Gly Phe Gln Ser Ala Met Leu Leu Ser Arg
 405 410 415

Leu Glu Arg

<210> 45
 <211> 416
 <212> PRT
 <213> Synechocystis sp.

<400> 45

Met Ala Asn Leu Glu Lys Lys Arg Val Val Val Thr Gly Leu Gly Ala
 1 5 10 15

Ile Thr Pro Ile Gly Asn Thr Leu Gln Asp Tyr Trp Gln Gly Leu Met
 20 25 30

Glu Gly Arg Asn Gly Ile Gly Pro Ile Thr Arg Phe Asp Ala Ser Asp
 35 40 45

Gln Ala Cys Arg Phe Gly Gly Glu Val Lys Asp Phe Asp Ala Thr Gln
 50 55 60

Phe Leu Asp Arg Lys Glu Ala Lys Arg Met Asp Arg Phe Cys His Phe
 65 70 75 80

Ala Val Cys Ala Ser Gln Gln Ala Ile Asn Asp Ala Lys Leu Val Ile
 85 90 95

Asn Glu Leu Asn Ala Asp Glu Ile Gly Val Leu Ile Gly Thr Gly Ile
 100 105 110

Gly Gly Leu Lys Val Leu Glu Asp Gln Gln Thr Ile Leu Leu Asp Lys
 115 120 125

Gly Pro Ser Arg Cys Ser Pro Phe Met Ile Pro Met Met Ile Ala Asn
 130 135 140

Met Ala Ser Gly Leu Thr Ala Ile Asn Leu Gly Ala Lys Gly Pro Asn
 145 150 155 160

Asn Cys Thr Val Thr Ala Cys Ala Ala Gly Ser Asn Ala Ile Gly Asp
 165 170 175

Ala Phe Arg Leu Val Gln Asn Gly Tyr Ala Lys Ala Met Ile Cys Gly
 180 185 190

Gly Thr Glu Ala Ala Ile Thr Pro Leu Ser Tyr Ala Gly Phe Ala Ser
 195 200 205

Ala Arg Ala Leu Ser Phe Arg Asn Asp Asp Pro Leu His Ala Ser Arg
 210 215 220

Pro Phe Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ser Gly
 225 230 235 240
 Ile Leu Ile Leu Glu Glu Leu Glu Ser Ala Leu Ala Arg Gly Ala Lys
 245 250 255
 Ile Tyr Gly Glu Met Val Gly Tyr Ala Met Thr Cys Asp Ala Tyr His
 260 265 270
 Ile Thr Ala Pro Val Pro Asp Gly Arg Gly Ala Thr Arg Ala Ile Ala
 275 280 285
 Trp Ala Leu Lys Asp Ser Gly Leu Lys Pro Glu Met Val Ser Tyr Ile
 290 295 300
 Asn Ala His Gly Thr Ser Thr Pro Ala Asn Asp Val Thr Glu Thr Arg
 305 310 315 320
 Ala Ile Lys Gln Ala Leu Gly Asn His Ala Tyr Asn Ile Ala Val Ser
 325 330 335
 Ser Thr Lys Ser Met Thr Gly His Leu Leu Gly Gly Ser Gly Gly Ile
 340 345 350
 Glu Ala Val Ala Thr Val Met Ala Ile Ala Glu Asp Lys Val Pro Pro
 355 360 365
 Thr Ile Asn Leu Glu Asn Pro Asp Pro Glu Cys Asp Leu Asp Tyr Val
 370 375 380
 Pro Gly Gln Ser Arg Ala Leu Ile Val Asp Val Ala Leu Ser Asn Ser
 385 390 395 400
 Phe Gly Phe Gly Gly His Asn Val Thr Leu Ala Phe Lys Lys Tyr Gln
 405 410 415

<210> 46
 <211> 441
 <212> PRT
 <213> Vibrio harveyi

<400> 46

Ser Asp Tyr His Asn His Phe Ile Asn Val Lys Ala Val Ala Arg Pro
 1 5 10 15
 Leu Phe Phe Cys Leu Phe Trp Arg Thr Ser Val Ala Asn Asn Arg Arg
 20 25 30
 Val Val Ile Thr Gly Leu Gly Ile Val Ser Pro Val Gly Asn Thr Val
 35 40 45
 Ala Thr Ala Trp Glu Ala Ile Lys Ser Gly Ile Ser Gly Ile Glu Asn
 50 55 60
 Ile Glu His Phe Asp Thr Thr Asn Phe Ser Thr Lys Phe Ala Gly Leu
 65 70 75 80

Val Asn Asp Phe Asp Ala Glu Ser Val Gly Ile Asn Arg Lys Asp Cys
 85 90 95
 Arg Lys Met Asp Leu Phe Ile Gln Tyr Gly Ile Ala Ala Ala Glu Gln
 100 105 110
 Ala Leu Thr Asp Ser Gly Leu Glu Ile Thr Glu Gln Asn Ala Thr Arg
 115 120 125
 Ile Gly Thr Ala Ile Gly Ser Gly Ile Gly Gly Leu Gly Leu Ile Glu
 130 135 140
 Gln Asn Val His Ser Phe Val Lys Gly Gly Ala Arg Lys Val Ser Pro
 145 150 155 160
 Phe Phe Val Pro Ala Thr Ile Val Asn Met Val Ala Gly His Val Ser
 165 170 175
 Ile Arg Asn Asn Leu Lys Gly Pro Asn Ile Ala Ile Ala Thr Ala Cys
 180 185 190
 Thr Ser Gly Thr His Cys Ile Gly Gln Ser Ala Arg Met Ile Ala Tyr
 195 200 205
 Gly Asp Ala Asp Val Met Val Ala Gly Gly Ala Glu Lys Ala Ser Thr
 210 215 220
 Glu Met Gly Leu Ala Gly Phe Gly Ser Ala Lys Ala Leu Ser Thr Arg
 225 230 235 240
 Asn Asp Asp Pro Gln Lys Ala Ser Arg Pro Trp Asp Lys Asp Arg Asp
 245 250 255
 Gly Phe Val Leu Gly Asp Gly Ala Gly Val Leu Val Met Glu Glu Tyr
 260 265 270
 Glu His Ala Val Ala Arg Gly Ala Thr Ile Tyr Ala Glu Leu Ala Gly
 275 280 285
 Phe Gly Met Ser Gly Asp Ala Phe His Met Thr Ser Pro Pro Glu Asp
 290 295 300
 Gly Ala Gly Ala Ala Leu Ser Met Asn Asn Ala Ile Ala Asp Ala Gly
 305 310 315 320
 Ile Thr Ala Asp Lys Val Gly Tyr Val Asn Ala His Gly Thr Ser Thr
 325 330 335
 Pro Ala Gly Asp Lys Ala Glu Thr Ala Ala Val Lys Ser Val Phe Gly
 340 345 350
 Glu His Ala Tyr Thr Leu Ala Val Ser Ser Thr Lys Ser Met Thr Gly
 355 360 365
 His Leu Leu Gly Ala Ala Gly Ala Ile Glu Ala Ile Phe Thr Ile Leu
 370 375 380

Ala Leu Lys Asp Gln Ile Leu Pro Pro Thr Ile Asn Leu Glu Asn Pro
385 390 395 400

Ser Glu Gly Cys Asp Leu Asp Tyr Val Thr Asp Gly Ala Arg Pro Val
405 410 415

Asn Met Glu Tyr Ala Leu Ser Asn Ser Phe Gly Phe Gly Gly Thr Asn
420 425 430

Gly Ser Leu Leu Phe Lys Lys Ala Asp
435 440

<210> 47

<211> 409

<212> PRT

<213> Escherichia coli

<400> 47

Ser Lys Arg Arg Val Val Val Thr Gly Leu Gly Met Leu Ser Pro Val
1 5 10 15

Gly Asn Thr Val Glu Ser Thr Trp Lys Ala Leu Leu Ala Gly Gln Ser
20 25 30

Gly Ile Ser Leu Ile Asp His Phe Asp Thr Ser Ala Tyr Ala Thr Lys
35 40 45

Phe Ala Gly Leu Val Lys Asp Phe Asn Cys Glu Asp Ile Ile Ser Arg
50 55 60

Lys Glu Gln Arg Lys Met Asp Ala Phe Ile Gln Tyr Gly Ile Val Ala
65 70 75 80

Gly Val Gln Ala Met Gln Asp Ser Gly Leu Glu Ile Thr Glu Glu Asn
85 90 95

Ala Thr Arg Ile Gly Ala Ala Ile Gly Ser Gly Ile Gly Gly Leu Gly
100 105 110

Leu Ile Glu Glu Asn His Thr Ser Leu Met Asn Gly Gly Pro Arg Lys
115 120 125

Ile Ser Pro Phe Phe Val Pro Ser Thr Ile Val Asn Met Val Ala Gly
130 135 140

His Leu Thr Ile Met Tyr Gly Leu Arg Gly Pro Ser Ile Ser Ile Ala
145 150 155 160

Thr Ala Cys Thr Ser Gly Val His Asn Ile Gly His Ala Ala Arg Ile
165 170 175

Ile Ala Tyr Gly Asp Ala Asp Val Met Val Ala Gly Gly Ala Glu Lys
180 185 190

Ala Ser Thr Pro Leu Gly Val Gly Gly Phe Gly Ala Ala Arg Ala Leu

195	200	205
Ser Thr Arg Asn Asp Asn Pro Gln Ala Ala Ser Arg Pro Trp Asp Lys		
210	215	220
Glu Arg Asp Gly Phe Val Leu Gly Asp Gly Ala Gly Met Leu Val Leu		
225	230	235
Glu Glu Tyr Glu His Ala Lys Lys Arg Gly Ala Lys Ile Tyr Ala Glu		
	245	250
Leu Val Gly Phe Gly Met Ser Ser Asp Ala Tyr His Met Thr Ser Pro		
	260	265
Pro Glu Asn Gly Ala Gly Ala Ala Leu Ala Met Ala Asn Ala Leu Arg		
	275	280
Asp Ala Gly Ile Glu Ala Ser Gln Ile Gly Tyr Val Asn Ala His Gly		
	290	295
Thr Ser Thr Pro Ala Gly Asp Lys Ala Glu Ala Gln Ala Val Lys Thr		
305	310	315
Ile Phe Gly Glu Ala Ala Ser Arg Val Leu Val Ser Ser Thr Lys Ser		
	325	330
Met Thr Gly His Leu Leu Gly Ala Ala Gly Ala Val Glu Ser Ile Tyr		
	340	345
Ser Ile Leu Ala Leu Arg Asp Gln Ala Val Pro Pro Thr Ile Asn Leu		
	355	360
Asp Asn Pro Asp Glu Gly Cys Asp Leu Asp Phe Val Pro His Glu Ala		
	370	375
Arg Gln Val Ser Gly Met Glu Tyr Thr Leu Cys Asn Ser Phe Gly Phe		
385	390	395
Gly Gly Thr Asn Gly Ser Leu Ile Phe		
	405	

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